SEQUENCE LISTING

<110> FUJISE, KEN
YEH, EDWARD T.H.

<120> METHODS AND COMPOSITIONS RELATING TO FORTILIN, AN ANTI-APOPTOTIC MOLECULE, AND MODULATORS OF FORTILIN

<130> UTSH:251US

<140> 10/021,753
<141> 2001-10-30

<150> 60/244,416
<151> 2000-10-30

<160> 12

<170> PatentIn Ver. 2.1

<210> 1
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<212> DNA
<213> Homo sapiens

<220>
<221> CDS
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Met Ile Ile Tyr Arg Asp Leu
1 5

atc agc cac gat gag atg ttc tcc gac atc tac aag atc cgg gag atc 163
Ile Ser His Asp Glu Met Phe Ser Asp Ile Tyr Lys Ile Arg Glu Ile
10 15 20

gcg gac ggg ttg tgc ctg gag gtg gag ggg aag atg gtc agt agg aca 211
Ala Asp Gly Leu Cys Leu Glu Val Glu Gly Lys Met Val Ser Arg Thr
25 30 35

gaa ggt aac att gat gac tcg ctc att ggt gga aat gcc tcc gct gaa 259
Glu Gly Asn Ile Asp Asp Ser Leu Ile Gly Gly Asn Ala Ser Ala Glu
40 45 50 55

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ggc ccc gag ggc gaa ggt acc gaa agc aca gta atc act ggt gtc gat   307
Gly Pro Glu Gly Glu Gly Thr Glu Ser Thr Val Ile Thr Gly Val Asp
                60                  65                  70

att gtc atg aac cat cac ctg cag gaa aca agt ttc aca aaa gaa gcc   355
Ile Val Met Asn His His Leu Gln Glu Thr Ser Phe Thr Lys Glu Ala
            75                  80                  85

tac aag aag tac atc aaa gat tac atg aaa tca atc aaa ggg aaa ctt   403
Tyr Lys Lys Tyr Ile Lys Asp Tyr Met Lys Ser Ile Lys Gly Lys Leu
        90                  95                  100

gaa gaa cag aga cca gaa aga gta aaa cct ttt atg aca ggg gct gca   451
Glu Glu Gln Arg Pro Glu Arg Val Lys Pro Phe Met Thr Gly Ala Ala
    105                 110                 115

gaa caa atc aag cac atc ctt gct aat ttc aaa aac tac cag ttc ttt   499
Glu Gln Ile Lys His Ile Leu Ala Asn Phe Lys Asn Tyr Gln Phe Phe
120                 125                 130                 135

att ggt gaa aac atg aat cca gat ggc atg gtt gct cta ttg gac tac   547
Ile Gly Glu Asn Met Asn Pro Asp Gly Met Val Ala Leu Leu Asp Tyr
                140                 145                 150

cgt gag gat ggt gtg acc cca tat atg att ttc ttt aag gat ggt tta   595
Arg Glu Asp Gly Val Thr Pro Tyr Met Ile Phe Phe Lys Asp Gly Leu
            155                 160                 165

gaa atg gaa aaa tgt taa caaatgtggc aattattttg gatctatcac          643
Glu Met Glu Lys Cys
        170

ctgtcatcat aactggcttc tgcttgtcat ccacacaaca ccaggactta agacaaatgg 703

gactgatgtc atcttgagct cttcatttat tttgactgtg atttatttgg agtggaggca 763

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<210> 2
<211> 172
<212> PRT
<213> Homo sapiens

<400> 2
Met Ile Ile Tyr Arg Asp Leu Ile Ser His Asp Glu Met Phe Ser Asp
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Ile Tyr Lys Ile Arg Glu Ile Ala Asp Gly Leu Cys Leu Glu Val Glu
            20                  25                  30
Gly Lys Met Val Ser Arg Thr Glu Gly Asn Ile Asp Asp Ser Leu Ile
         35                  40                  45
Gly Gly Asn Ala Ser Ala Glu Gly Pro Glu Gly Glu Gly Thr Glu Ser
     50                  55                  60
Thr Val Ile Thr Gly Val Asp Ile Val Met Asn His His Leu Gln Glu
 65                  70                  75                  80
Thr Ser Phe Thr Lys Glu Ala Tyr Lys Lys Tyr Ile Lys Asp Tyr Met
                 85                  90                  95
Lys Ser Ile Lys Gly Lys Leu Glu Glu Gln Arg Pro Glu Arg Val Lys
            100                 105                 110
Pro Phe Met Thr Gly Ala Ala Glu Gln Ile Lys His Ile Leu Ala Asn
        115                 120                 125
Phe Lys Asn Tyr Gln Phe Phe Ile Gly Glu Asn Met Asn Pro Asp Gly
    130                 135                 140
Met Val Ala Leu Leu Asp Tyr Arg Glu Asp Gly Val Thr Pro Tyr Met
145                 150                 155                 160
Ile Phe Phe Lys Asp Gly Leu Glu Met Glu Lys Cys
                165                 170
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<210> 3
<211> 172
<212> PRT
<213> Rabbit

<400> 3

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Met Ile Ile Tyr Arg Asp Leu Ile Ser His Asp Glu Met Phe Ser Asp
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Ile Tyr Lys Ile Arg Glu Ile Ala Gly Gly Leu Cys Leu Glu Val Glu
            20                  25                  30

Gly Lys Met Val Ser Arg Thr Glu Gly Asn Ile Asp Asp Ser Leu Ile
         35                  40                  45

Gly Gly Asn Ala Ser Ala Glu Gly Pro Glu Gly Glu Gly Thr Glu Ser
     50                  55                  60

Thr Val Ile Thr Gly Val Asp Ile Val Met Asn His His Leu Gln Glu
 65                  70                  75                  80

Thr Ser Phe Thr Lys Glu Ala Tyr Lys Lys Tyr Ile Lys Asp Tyr Met
                 85                  90                  95
```

```
Lys Ser Ile Lys Gly Lys Leu Glu Glu Gln Arg Pro Glu Arg Val Lys
            100                 105                 110

Pro Phe Met Thr Gly Ala Ala Glu Gln Ile Lys His Ile Leu Ala Asn
        115                 120                 125

Phe Lys Asn Tyr Gln Phe Tyr Ile Gly Glu Asn Met Asn Pro Asp Gly
    130                 135                 140

Met Val Ala Leu Leu Asp Tyr Arg Glu Asp Gly Val Thr Pro Phe Met
145                 150                 155                 160

Ile Phe Phe Lys Asp Gly Leu Glu Met Glu Lys Cys
                165                 170
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<210> 4
<211> 172
<212> PRT
<213> Mus musculus

<400> 4

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Met Ile Ile Tyr Arg Asp Leu Ile Ser His Asp Glu Leu Phe Ser Asp
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Ile Tyr Lys Ile Arg Glu Ile Ala Asp Gly Leu Cys Leu Glu Val Glu
             20                  25                  30

Gly Lys Met Val Ser Arg Thr Glu Gly Ala Ile Asp Asp Ser Leu Ile
         35                  40                  45

Gly Gly Asn Ala Ser Ala Glu Gly Pro Glu Gly Glu Gly Thr Glu Ser
     50                  55                  60

Thr Val Val Thr Gly Val Asp Ile Val Met Asn His His Leu Gln Glu
 65                  70                  75                  80

Thr Ser Phe Thr Lys Glu Ala Tyr Lys Lys Tyr Ile Lys Asp Tyr Met
                85                  90                  95

Lys Ser Leu Lys Gly Lys Leu Glu Glu Gln Lys Pro Glu Arg Val Lys
            100                 105                 110

Pro Phe Met Thr Gly Ala Ala Glu Gln Ile Lys His Ile Leu Ala Asn
        115                 120                 125

Phe Asn Asn Tyr Gln Phe Phe Ile Gly Glu Asn Met Asn Pro Asp Gly
    130                 135                 140
```

```
Met Val Ala Leu Leu Asp Tyr Arg Glu Asp Gly Val Thr Pro Phe Met
145                 150                 155                 160

Ile Phe Phe Lys Asp Gly Leu Glu Met Glu Lys Cys
                165                 170
```

<210> 5
<211> 172
<212> PRT
<213> Chicken

<400> 5

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Met Ile Ile Tyr Arg Asp Cys Ile Ser Gln Asp Glu Met Phe Ser Asp
  1               5                  10                  15

Ile Tyr Lys Ile Arg Glu Val Ala Asn Gly Leu Cys Leu Glu Val Glu
             20                  25                  30

Gly Lys Met Val Thr Arg Thr Glu Gly Gln Ile Asp Asp Ser Leu Ile
         35                  40                  45

Gly Gly Asn Ala Ser Ala Glu Gly Pro Glu Gly Glu Gly Thr Glu Ala
     50                  55                  60

Thr Val Ile Thr Gly Val Asp Ile Val Ile Asn His His Leu Gln Glu
 65                  70                  75                  80

Thr Ser Phe Thr Lys Glu Ser Tyr Lys Lys Tyr Ile Lys Asp Tyr Met
                 85                  90                  95

Lys Ala Ile Lys Ala Arg Leu Glu Glu His Lys Pro Glu Arg Val Lys
            100                 105                 110

Pro Phe Met Thr Gly Ala Ala Glu Gln Ile Lys His Ile Leu Ala Asn
        115                 120                 125

Phe Lys Asn Tyr Gln Phe Phe Ile Gly Glu Asn Met Asn Pro Asp Gly
    130                 135                 140

Met Val Ala Leu Leu Asp Phe Arg Glu Asp Gly Val Thr Pro Tyr Met
145                 150                 155                 160

Ile Phe Phe Lys Asp Gly Leu Glu Ile Glu Lys Cys
                165                 170
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<210> 6
<211> 172
<212> PRT
<213> D. Melanogaster

<400> 6
Met Lys Ile Tyr Lys Asp Ile Ile Thr Gly Asp Glu Met Phe Ala Asp
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Thr Tyr Lys Met Lys Leu Val Asp Asp Val Ile Tyr Glu Val Tyr Gly
20 25 30

Lys Leu Ile Thr Arg Gln Gly Asp Asp Ile Lys Leu Glu Gly Ala Asn
35 40 45

Ala Ser Ala Glu Glu Ala Asp Glu Gly Thr Asp Ile Thr Ser Glu Ser
50 55 60

Gly Val Asp Val Val Leu Asn His Arg Leu Thr Glu Cys Phe Ala Phe
65 70 75 80

Gly Asp Lys Lys Ser Tyr Thr Leu Tyr Leu Lys Asp Tyr Met Lys Lys
85 90 95

Val Leu Ala Lys Leu Glu Glu Lys Ser Pro Asp Gln Val Asp Ile Phe
100 105 110

Lys Thr Asn Met Asn Lys Ala Met Lys Asp Ile Leu Gly Arg Phe Lys
115 120 125

Glu Leu Gln Phe Phe Thr Gly Glu Ser Met Asp Cys Asp Gly Met Val
130 135 140

Ala Leu Val Glu Tyr Arg Glu Ile Asn Gly Asp Ser Val Pro Val Leu
145 150 155 160

Met Phe Phe Lys His Gly Leu Glu Glu Glu Lys Cys
165 170

<210> 7
<211> 181
<212> PRT
<213> C. ELEGANS

<400> 7
Met Leu Ile Tyr Lys Asp Ile Ile Ser Asp Asp Glu Leu Ser Ser Asp
1 5 10 15

```
Ser Phe Pro Met Lys Leu Val Asp Asp Leu Val Tyr Glu Phe Lys Gly
             20                  25                  30

Lys His Val Val Arg Lys Glu Gly Glu Ile Val Leu Ala Gly Ser Asn
         35                  40                  45

Pro Ser Ala Glu Glu Gly Ala Glu Asp Asp Gly Ser Asp Glu His Val
     50                  55                  60

Glu Arg Gly Ile Asp Ile Val Leu Asn His Lys Leu Val Glu Met Asn
 65                  70                  75                  80

Cys Tyr Glu Asp Ala Ser Met Phe Lys Ala Tyr Ile Lys Lys Phe Met
                 85                  90                  95

Lys Asn Val Ile Asp His Met Glu Lys Asn Asn Arg Asp Lys Ala Asp
            100                 105                 110

Val Asp Ala Phe Lys Lys Lys Ile Gln Gly Trp Val Val Ser Leu Leu
        115                 120                 125

Ala Lys Asp Arg Phe Lys Asn Leu Ala Phe Phe Ile Gly Glu Arg Ala
    130                 135                 140

Ala Glu Gly Ala Glu Asn Gly Gln Val Ala Ile Ile Glu Tyr Arg Asp
145                 150                 155                 160

Val Asp Gly Thr Glu Val Pro Thr Leu Met Leu Val Lys Glu Ala Ile
                165                 170                 175

Ile Glu Glu Lys Cys
            180
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<210> 8
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<212> PRT
<213> S. Cerevisiae

<400> 8

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Met Ile Ile Tyr Lys Asp Ile Phe Ser Asn Asp Glu Leu Leu Ser Asp
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Ala Tyr Asp Ala Lys Leu Val Asp Asp Val Ile Tyr Glu Ala Asp Cys
             20                  25                  30

Ala Met Val Asn Val Gly Gly Asp Asn Ile Asp Ile Gly Ala Asn Pro
```

```
         35                  40                  45

Ser Ala Glu Gly Gly Asp Asp Asp Val Glu Glu Gly Ala Glu Met Val
     50                  55                  60

Asn Asn Val Val His Ser Phe Arg Leu Gln Gln Thr Ala Phe Asp Lys
 65                  70                  75                  80

Lys Ser Phe Leu Thr Tyr Ile Lys Gly Tyr Met Lys Ala Val Lys Ala
                 85                  90                  95

Lys Leu Gln Glu Thr Asn Pro Glu Glu Val Pro Lys Phe Glu Lys Gly
            100                 105                 110

Ala Gln Thr Tyr Val Lys Lys Val Ile Gly Ser Phe Lys Asp Trp Glu
        115                 120                 125

Phe Phe Thr Gly Glu Ser Met Asp Pro Asp Ala Met Val Val Met Leu
    130                 135                 140

Asn Tyr Arg Glu Asp Gly Thr Thr Pro Phe Val Ala Ile Trp Lys His
145                 150                 155                 160

Gly Ile Val Glu Glu Lys
                165
```

<210> 9
<211> 168
<212> PRT
<213> RICE

<400> 9

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Met Leu Val Tyr Gln Asp Leu Leu Tyr Gly Asp Glu Leu Leu Ser Asp
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Ser Phe Pro Tyr Arg Glu Ile Glu Asn Gly Ile Leu Trp Glu Val Asp
             20                  25                  30

Gly Lys Trp Val Val Gln Gly Ala Ile Asp Val Asp Ile Gly Ala Asn
         35                  40                  45

Pro Ser Ala Glu Gly Gly Gly Asp Asp Glu Gly Val Asp Asp Gln Ala
     50                  55                  60

Val Lys Val Val Asp Ile Val Asp Thr Phe Arg Leu Gln Glu Gln Pro
 65                  70                  75                  80
```

```
Pro Phe Asp Lys Lys Gln Phe Val Thr Phe Met Lys Arg Tyr Ile Lys
                 85                  90                  95

Asn Leu Ser Ala Lys Leu Asp Ala Glu Lys Gln Glu Glu Phe Lys Phe
            100                 105                 110

Asn Ile Glu Gly Ala Thr Lys Tyr Leu Leu Gly Lys Leu Lys Asp Leu
        115                 120                 125

Gln Phe Phe Val Gly Glu Ser Met His Asp Asp Gly Gly Leu Val Phe
    130                 135                 140

Ala Tyr Tyr Lys Asp Gly Ala Thr Asp Pro Thr Phe Leu Tyr Phe Ser
145                 150                 155                 160

His Gly Leu Lys Glu Val Lys Cys
                165
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<210> 10
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Peptide

<400> 10

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Glu Gln Arg Pro Glu Arg
            20
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<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Peptide

<400> 11

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Thr Val Phe Gln Gly
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<210> 12
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Peptide

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Arg Glu